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SEP 28 2006

PATENT APPLICATION  
Attorney Docket: 70021175-1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF APPEALS**

Applicant: Ng, et al  
Serial No.: 10/616,759  
Filed: 7/9/2003  
For: Light Emitting Diode Utilizing a Discrete Wavelength-Converting Layer for Color Conversion  
Group Art Unit: 2891  
Examiner: Farahani, Dana

**BRIEF FOR APPELLANT**

Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an appeal from the decision of the Primary Examiner dated 07/25/2006, finally rejecting Claims 7 and 17 in the above-identified patent application.

**I. REAL PARTY IN INTEREST**

The real party in interest is Avago Technologies, LTD. having an address as indicated below.

**II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences known to appellant, the appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

**III. STATUS OF THE CLAIMS**

The Examiner stated that Claims 7 and 17 are currently pending in the above-identified patent application in the office action dated 7/25/06. However, Applicant amended

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the application in the previous office action to include new Claims 17 and 18. The office action dated 7/25/06 is silent with respect to new claim 18. In the Office Action dated 7/25/06, the Examiner rejected Claims 7 and 17 and indicated that the Action was final. Applicant assumes that Claim 18 is pending.

#### **IV. STATUS OF AMENDMENTS**

No amendments have been filed since the final rejection dated 7/25/06.

#### **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

As per Claim 7, the claimed invention is a method for fabricating a light source. The method can be more easily understood with reference to Figure 4 and the discussion thereof that begins on page 6, at line 27. A chip 310 having a primary light source is mounted on a substrate 202. The primary light source emits light at a first wavelength. Power terminals on the chip are connected to the substrate as shown by wire bonds 204 and 206. A preformed transparent cap 307 is mounted over the chip. The cap includes a wavelength-converting material for converting a portion of the light of the first wavelength to a second wavelength. The transparent cap includes a spherical surface having a constant thickness. With respect to Claim 17, the transparent cap includes a material in which the wavelength-converting material is soluble. With respect to Claim 18, the cap includes glass.

#### **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

A. The rejection Claims 7 and 17 "under 35 U.S.C. 102(b) as being unpatentable under U.S.C. 103(a) as being obvious over Kawae, *et al* (hereafter "Kawae")(US 2002/008 0501)". Applicant assumes that the Examiner meant to reject these claims under 35 U.S.C. 103(a).

B. The implicit rejection of Claim 18.

#### **VII. ARGUMENT**

##### **A. The Examiner's Burden under 35 U.S.C. 103**

The Examiner must show that the modifications needed to alter the teachings of the reference to obtain the claimed invention are suggested by the prior art. "The mere fact that a reference could be modified to produce the patented invention would not make the

modification obvious unless it is suggested by the prior art." (*Libbey-Owens-Ford v. BOC Group*, 4 USPQ 2d 1097, 1103). "When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference" (*In re Rijckaert*, 28 USPQ2d, 1955, 1957).

## **B. Rejection of Claims 7 and 17 as being obvious in view of Kawae**

### **1. Rejection of Claim 7**

The Examiner looks to Figure 8 of Kawae as teaching all of the limitations of Claim 7 with the exception of the limitation that the cap comprises a spherical surface of constant thickness. The Examiner then looks to Figure 10 as teaching a spherical surface 6 above the LED. According to the Examiner, it would be obvious to use the cap shown in Figure 10 in the arrangement shown in Figure 8 "so the light rays emitted from the LED would be affected such that they travel in a particular direction for a particular application of the LED, which one of ordinary skill in the art desires to implement the LED".

First, the Examiner has not pointed to any teaching in Kawae that the layer shown in Figure 10 has constant thickness. It should be noted that Kawae teaches that the device shown in Figure 10 is prior art. While the drawing appears to show such a layer, there is no statement in the text to that effect. "It is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue" *Nystrom v. Trex Co.*, 71 USPQ2D 1241, 1250.

The Examiner attempts to overcome this problem by arguing that the reference addresses the thickness with respect to the thickness of the different portions of the spherical surface. In particular, the Examiner points to paragraph 59 of Kawae, which states that one can vary the thickness of the cover to provide uniform illumination as shown in Figure 7, and hence, the specification is not completely silent with respect to the thickness of the cover. The cited passage does not provide any information about the thickness of the cover shown in Figure 10. In addition, if anything, the cited passage argues away from using a cover of constant thickness.

Second, the Examiner's argument for making a spherical cover in the embodiment shown in Figure 8 is flawed. First, the cover includes phosphor particles. The phosphor

particles absorb the light from the LED and re-emit light having a wavelength determined by the phosphor. The re-emitted light is emitted in all directions independent of the thickness of the shell in which the phosphor particles are suspended. Hence, changing the thickness of the shell does not affect the direction in which the rays travel. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 7 and the claims dependent therefrom.

## 2. Rejection of Claim 17

Claim 17 depends from Claim 7 and includes the further limitation that the cap includes a material in which the phosphor is soluble. The Examiner has not pointed to any such teaching in Kawae. Accordingly, Applicant submits that there are additional grounds for finding that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 17.

## C. Implicit rejection of Claim 18

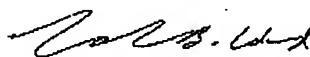
Claim 18 depends from Claim 7 and further requires that the cap comprises glass. The Examiner's action is silent with respect to this claim. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 18.

## VIII. CONCLUSION

Appellants respectfully submit that for the reasons of fact and law argued herein, the decision of the Examiner in finally rejecting Claims 7 and 17 should be reversed and Claim 18 should be allowed.

I hereby certify that this paper (along with any others attached hereto) is being sent via facsimile to fax number: 571-273-8300

Respectfully Submitted,



Calvin B. Ward  
Registration No. 30,896  
Date: Sept. 28, 2006

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APPENDIX

**THE CLAIMS ON APPEAL:**

7. A method for fabricating a light source comprising:

mounting a chip having a primary light source on a substrate, said primary light source emitting light of a first wavelength;

connecting power terminals on said chip to corresponding power terminals on said substrate for powering said primary light source; and

mounting a preformed transparent cap over said chip, said cap comprising a wavelength-converting material for converting a portion of said light of said first wavelength to a second wavelength, wherein said transparent cap comprises a spherical surface of constant thickness.

17. The method of Claim 7 wherein said transparent cap comprises a material in which said wavelength-converting material is soluble.

18. The method of Claim 7 wherein said transparent cap comprises glass.

**Evidence Appendix**

**none**

**Related Proceedings Appendix**

**none**



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the application in the previous office action to include new Claims 17 and 18. The office action dated 7/25/06 is silent with respect to new claim 18. In the Office Action dated 7/25/06, the Examiner rejected Claims 7 and 17 and indicated that the Action was final. Applicant assumes that Claim 18 is pending.

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#### **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

A. The rejection Claims 7 and 17 "under 35 U.S.C. 102(b) as being unpatentable under U.S.C. 103(a) as being obvious over Kawae, *et al* (hereafter "Kawae")(US 2002/008 0501)". Applicant assumes that the Examiner meant to reject these claims under 35 U.S.C. 103(a).

B. The implicit rejection of Claim 18.

#### **VII. ARGUMENT**

##### **A. The Examiner's Burden under 35 U.S.C. 103**

The Examiner must show that the modifications needed to alter the teachings of the reference to obtain the claimed invention are suggested by the prior art. "The mere fact that a reference could be modified to produce the patented invention would not make the

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## **B. Rejection of Claims 7 and 17 as being obvious in view of Kawae**

### **1. Rejection of Claim 7**

The Examiner looks to Figure 8 of Kawae as teaching all of the limitations of Claim 7 with the exception of the limitation that the cap comprises a spherical surface of constant thickness. The Examiner then looks to Figure 10 as teaching a spherical surface 6 above the LED. According to the Examiner, it would be obvious to use the cap shown in Figure 10 in the arrangement shown in Figure 8 "so the light rays emitted from the LED would be affected such that they travel in a particular direction for a particular application of the LED, which one of ordinary skill in the art desires to implement the LED".

First, the Examiner has not pointed to any teaching in Kawae that the layer shown in Figure 10 has constant thickness. It should be noted that Kawae teaches that the device shown in Figure 10 is prior art. While the drawing appears to show such a layer, there is no statement in the text to that effect. "It is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue" *Nystrom v. Trex Co.*, 71 USPQ2D 1241, 1250.

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Second, the Examiner's argument for making a spherical cover in the embodiment shown in Figure 8 is flawed. First, the cover includes phosphor particles. The phosphor

particles absorb the light from the LED and re-emit light having a wavelength determined by the phosphor. The re-emitted light is emitted in all directions independent of the thickness of the shell in which the phosphor particles are suspended. Hence, changing the thickness of the shell does not affect the direction in which the rays travel. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 7 and the claims dependent therefrom.

## 2. Rejection of Claim 17

Claim 17 depends from Claim 7 and includes the further limitation that the cap includes a material in which the phosphor is soluble. The Examiner has not pointed to any such teaching in Kawae. Accordingly, Applicant submits that there are additional grounds for finding that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 17.

## C. Implicit rejection of Claim 18

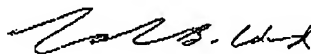
Claim 18 depends from Claim 7 and further requires that the cap comprises glass. The Examiner's action is silent with respect to this claim. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 18.

## VIII. CONCLUSION

Appellants respectfully submit that for the reasons of fact and law argued herein, the decision of the Examiner in finally rejecting Claims 7 and 17 should be reversed and Claim 18 should be allowed.

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**Evidence Appendix**

**none**

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## 2. Rejection of Claim 17

Claim 17 depends from Claim 7 and includes the further limitation that the cap includes a material in which the phosphor is soluble. The Examiner has not pointed to any such teaching in Kawai. Accordingly, Applicant submits that there are additional grounds for finding that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 17.

## C. Implicit rejection of Claim 18

Claim 18 depends from Claim 7 and further requires that the cap comprises glass. The Examiner's action is silent with respect to this claim. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 18.

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